CLAIMS

1. A combustor comprising:

an annular outer casing;

an annular inner casing including first and second flanges at opposite ends with a header therebetween, said first flange having a first rabbet circumferentially therearound, and said second flange being fixedly supported from said outer casing;

said header including a row of fuel injectors mounted through apertures therein;

an annular inner shell including first and second flanges at opposite ends thereof with a dome therebetween, and a radially outer second rabbet around said first flange thereof, with said shell first flange being seated in said first rabbet;

said dome including a row of air swirlers mounted in apertures therein and receiving in circumferential alignment corresponding ones of said fuel injectors;

an annular inner combustion liner including first and second flanges at opposite ends, and said liner first flange being seated around said second rabbet;

an annular outer combustor wall mounted to said shell second flange; and

an annular inner retainer fixedly joined to said casing first flange to axially trap said shell first flange around said first rabbet.

2. A combustor according to claim 1 wherein said inner casing is toroidal, with said header being disposed axially forward of both said first and second flanges thereof for receiving said inner shell forward of said casing first flange to define an annulus therebetween for channeling pressurized air therethrough.

3. A combustor according to claim 2 further comprising a row of bypass holes disposed through said shell first flange in flow communication with said annulus.

4. A combustor according to claim 3 wherein said inner retainer includes a radially

outer flange having a row of apertures extending therethrough circumferentially aligned with respective ones of said bypass holes.

5. A combustor according to claim 4 further comprising a plurality of keys mounted in respective slots between said shell first flange and said first rabbet for maintaining circumferential alignment between said fuel injectors in said header and said air swirlers in said dome.

6. A combustor according to claim 5 wherein:

said inner liner includes a row of dilution holes for channeling dilution air therethrough; and

further comprising a plurality of pins mounted in respective sockets between said liner first flange and said second rabbet for maintaining circumferential alignment between said dilution holes and said swirler apertures in said dome.

7. A combustor according to claim 6 wherein:

said keys are fixedly mounted in said shell first flange, and said slots are disposed in said first rabbet in radial alignment therewith; and

said pins are fixedly joined to said inner shell radially outwardly of said second rabbet, and said sockets are disposed in said liner first flange in axial alignment therewith.

8. A combustor according to claim 7 further comprising an annular outer retainer fixedly joined to said second rabbet to axially trap said liner first flange around said second rabbet.

9. A method of assembling said combustor according to claim 8 comprising:

axially mounting said inner liner around inner shell to seat said liner first flange in said second rabbet, while circumferentially aligning said pins and sockets;

axially mounting said inner shell around said inner casing to seat said shell first

flange in said first rabbet, while circumferentially aligning said keys and slots;

fixedly joining said outer retainer to said second rabbet to axially trap said liner first flange around said second rabbet; and

axially mounting said inner retainer in said first rabbet to axially trap said shell first flange in said first rabbet.

10. A method of repairing said combustor according to claim 8 comprising:

removing said inner retainer from said inner casing;

removing said inner shell and liner from said inner casing;

removing said outer retainer from said second rabbet to release said inner liner;

removing and replacing said inner liner from said inner shell; and

reassembling said replaced inner liner with said inner shell on said inner casing.

11. A combustor comprising:

an annular inner casing including first and second flanges at opposite ends, and a radially outer first rabbet around said first flange thereof;

an annular inner shell including first and second flanges at opposite ends, and a radially outer second rabbet around said first flange thereof, with said shell first flange being seated in said first rabbet;

an annular inner combustion liner including first and second flanges at opposite ends, and said liner first flange being seated around said second rabbet;

an annular outer combustor wall mounted to said shell second flange; and

an annular inner retainer fixedly joined to said casing first flange to axially trap said shell first flange around said first rabbet.

12. A combustor according to claim 11 wherein:

said inner casing further includes an annular header adjoining said casing second flange, and a row of apertures therethrough for mounting corresponding fuel injectors therein;

said inner shell further includes an annular dome adjoining said shell second flange, and a row of apertures therethrough for mounting corresponding air swirlers therein in circumferential alignment with respective ones of said casing apertures; and

further comprising a plurality of keys mounted in respective slots between said shell first flange and said first rabbet for maintaining circumferential alignment between said apertures in said header and dome.

13. A combustor according to claim 12 wherein:

said inner liner includes a row of dilution holes for channeling dilution air therethrough; and

further comprising a plurality of pins mounted in respective sockets between said liner first flange and said second rabbet for maintaining circumferential alignment between said dilution holes and said swirler apertures in said dome.

14. A combustor according to claim 13 further comprising a row of bypass holes disposed through said shell first flange in flow communication with an annulus defined between said inner casing and said shell.

15. A combustor according to claim 14 wherein said inner retainer includes a radially outer flange having a row of apertures extending therethrough circumferentially aligned with respective ones of said bypass holes.

16. A combustor according to claim 13 further comprising an annular outer retainer fixedly joined to said second rabbet to axially trap said liner first flange around said second rabbet.

17. A method of assembling said combustor according to claim 13 comprising:

axially mounting said inner liner around inner shell to seat said liner first flange in said second rabbet, while circumferentially aligning said pins and sockets; and

axially mounting said inner shell around said inner casing to seat said shell first flange in said first rabbet, while circumferentially aligning said keys and slots.

18. A method according to claim 17 further comprising axially mounting said inner retainer in said first rabbet to axially trap said shell first flange in said first rabbet.

19. A combustor according to claim 13 wherein said keys are fixedly mounted in said shell first flange, and said slots are disposed in said first rabbet in radial alignment therewith.

20. A combustor according to claim 13 wherein said pins are fixedly joined to said inner shell radially outwardly of said second rabbet, and said sockets are disposed in said liner first flange in axial alignment therewith.